

**A tool stowage device having an unclippable clip-on lid**

The present invention relates to the field of devices for stowing tools, and preferably for stowing medical-type supplies, in particular of the following types: drill bits, reamers, pivots, and dental implants.

It is already known from the prior art that there exist dental equipment refills, in particular drill bits and pivots, in the form of airtight bags, tubes or boxes, generally made of a plastics material.

The contents of such a refill are designed to be poured into or placed manually in a container, in order to facilitate subsequent use of them. In general, said container is made of a thermoformed plastics material.

The contents of such a refill can also be used directly by picking up the contents by hand or by means of tweezers.

Medical supplies of the dental type are designed to be used in the mouths of patients. For obvious reasons of hygiene, the supplies must be clean and sterilized.

A drawback with the prior art is that the dental supplies are soiled when the contents of the refills are taken out by hand. Such handling is necessary, for example, for fastening the drill bit to its drive system or for putting in place the pivots.

In addition, the plastics material generally used for the refills and for the containers does not enable them to be sterilized directly in the containers. An additional operation prior to sterilization and in which they are transferred to a container specific to sterilization methods, and then from said container to the stowage

container after sterilization does not offer sufficient hygiene conditions.

An object of the present invention is to remedy the drawbacks of the prior art by proposing a tool-stowage  
5 device that is simple to use, that is simple to make, and that makes it very easy to sterilize the tools when they are stowed in said device.

Boxes each made up of a container and of a lid are known from the prior art.

10 Thus, US Patents Nos. 4 615 461 and 5 732 820 describe a box structure whose lid is provided with lugs mounted to slide in longitudinal grooves in the receptacle.

Similarly, US Patent No. 5 080 222 describes a box whose lid is mounted to slide longitudinally relative to the  
15 receptacle. The lid is provided with vertical and horizontal rails on its bottom portions, which rails co-operate with catches provided on the outside walls of the receptacle tray, thereby preventing the tray from moving at all. Tray movement is made possible by applying a vertical  
20 force to the lid, thereby bowing it and spacing the catches apart from the rails.

These various solutions differ from the present invention because they are not clip-on.

US Patent No. 4 342 403 also discloses a rectangular box  
25 shaped receptacle with lip-shaped members on opposite sides that co-operate with compatibly shaped members on the lid. The lid is designed to clip onto the box by snap action. The lid can then be removed by sliding the box.

UK Patent Application GB 2 240 322 describes a box whose lid  
30 is removable from the receptacle. The lid has side walls of

shape compatible with channels in the edge of the receptacle. By snap-engaging in the corresponding channel of the receptacle, the side wall closes the box.

5 International Patent Application WO 03/018420 describes a box whose lid is easy to put on and to take off by using a skirt on the lid that locks onto the outside portion of the top of the receptacle.

None of those documents describes a box having unclipping of the "clothes-peg" type as in the present invention.

10 The device of the present invention is of the above-described type and it is remarkable, in its broadest acceptance, in that it comprises a container serving to receive said tools and closure means complementary to said container, said closure means also being means for taking  
15 hold of the container, said tool stowage device being characterized in that said closure means comprise a horizontal plane portion and at least two vertical flanges, said vertical flanges serving as means for taking hold of the container and co-operating with said plane portion to  
20 form unclipping opening means that are actuated by pressing on said vertical flanges as if pressing on a clothes peg.

Preferably, said plane portion serves as means for expelling said container during opening by unclipping.

25 In addition, said container is provided, on at least an open one of its faces, with at least two tongues serving to engage in slideway means.

Advantageously, said tongues are of width enabling them to receive inscriptions.

30 Preferably, said container presents a female portion, and the lid presents a male portion, said male portion being

designed to engage in said female portion when the device is closed, and to serve as means for blocking sliding of the lid relative to the container while the device is being opened by sliding.

- 5 Advantageously, said container is provided with at least one orifice in one of its closed faces.

In a particular embodiment, said lid is made of a transparent material.

- 10 In addition, said lid is preferably made of a plastics material or of a semi-rigid material.

Preferably, each of said vertical portions of said lid presents non-slip means over at least a portion of its surface, improving grip when taking hold of it.

- 15 The present invention also provides a box provided with an opening / closure system, and with at least one recess serving to receive a stowage device of the invention as defined above.

Preferably, the edges of said container are means for retaining the container in said recesses.

- 20 Advantageously, said edges present raising means for raising the container relative to the surface of said box.

In a particular embodiment of the invention, each of said vertical portions of said lid has a bottom portion that is circularly arcuate in shape.

- 25 Advantageously, said bottom portions of said vertical portions are of length less than or equal to the depth of said container.

Preferably, said box is provided with at least one orifice in one of its faces.

The invention will be better understood on reading the following description of an embodiment of the invention given merely by way of explanation and with reference to the accompanying figures, in which:

Figure 1 is a perspective view of the device of the invention in the closed position;

Figure 2 is a perspective view of the device of the invention after opening;

Figure 3 is a perspective view of the lid of the device of the invention;

Figure 4 is a perspective view of the container of the device of the invention;

Figure 5 is a perspective view of the box designed to receive the device of the invention; and

Figure 6 shows a perspective view of the box receiving the device of the invention;

As shown in Figure 2, the device of the invention comprises two portions, namely a bottom portion and a top portion.

Said bottom portion, shown in Figure 4, is a container 1 designed to receive tools, and more particularly drill bits, pivots, and dental implants. The container is substantially in the shape of a rectangular block having one open face. Tongues 2 on the edges of said open face are designed to engage into the closure means of said top portion.

Said top portion, shown in Figure 3, constitutes closure means for closing said open face of the container. It is

made up of a horizontal plane portion 4 that serves as a lid and that has vertical flanges 5 on at least two opposite ones of its sides.

5 Said vertical flanges 5 are means for taking hold of said lid and of said device when the lid is fastened to the container 1 in the closed position. Said vertical flanges 5 can be provided with vertical grooves 6 or with horizontal grooves that act as non-slip means when taking hold of said lid.

10 In its bottom portion, each of the vertical flanges 5 is provided with a longitudinal groove 7 that co-operates with the plane portion 4 to form a slideway. The depth of said grooves 7 makes it possible for the tongues 2 on said container 1 to slide and to be clipped/unclipped relative to  
15 said lid.

A male portion (not shown) and a female portion 8 are disposed respectively on the lid and on the container 1. When the device is closed, the male portion engages in the female portion 8. While the container is being opened by  
20 sliding, the lug defined by said male portion serves as an abutment against a wall of said container 1 so as to stop the sliding and thus so as to hold the lid attached to the container 1 in the open position.

25 Said lid is made of a rigid or a semi-rigid plastics material that accommodates a small amount of stress deformation, which makes it possible for each of said vertical flanges 5 to have a degree of freedom in rotation relative to said plane portion 4 about the axis defined by the corresponding junction between said vertical flange and  
30 said horizontal plane 4.

Clipping / unclipping the lid relative to the container 1 takes place by pressing on said vertical flanges 5 of the lid, as if pressing on a clothes peg, and through said degree of freedom. The strength of the plastics material makes it possible for the various portions of the lid to deform slightly and for said lid to be clipped on and unclipped.

Unclipping takes place by means of the various portions of the lid deforming under an expulsion force applied from the lid towards the container.

The two means for opening / closing said device offer the possibility of using the refills directly by placing the device preferably on a plane surface, or in a stowage box grouping together a plurality of devices of the invention.

The box 10, shown in Figure 6, is designed to receive a plurality of devices of the invention, corresponding to different tool sizes. Said containers 1 have different colors depending on the sizes of the tools that they contain, thereby simplifying recognition and stowage. A column or row color indicator can be added to the box.

Said box 10 as empty, shown in Figure 5, is a support provided with at least one recess 11 designed to receive a device of the invention, said recess having a shape making it possible to receive said container 1.

The device is placed in said recess 11 by unclipping the lid, the container sliding into its recess 11. Said tongues 2 on the container 1 retain it on the edges 12 of said recess 11.

In a particular embodiment of the invention, each of the vertical portions 5 of the lid is provided with a skirt-like bottom portion 13 of length less than or equal to the height

of the container. This difference in length makes it possible for the bottom portion of the container 1 to be placed and pre-positioned in the recess 11 prior to being released by unclipping.

5 In another embodiment of the invention, said skirt 13 is substantially circularly arcuate in shape, and is of length greater than the length of said container, the resulting arch serving to enable a device to be put in place without touching another device that is already in place.

10 Said skirt 13 can be of small height, and the bottom portion 13 of said lid is then constituted merely by the slideway 7. In this particular embodiment, the bottom faces of said tongues 2 of the container are provided with lugs 14 serving as chocks for raising the container 1 relative to the  
15 surface of said box 10. This raising makes it possible for the lid to be simpler to extract by hand, or for the lid to be extracted by clipping the lid onto said container 1.

Said tongues of the container 1, which can be seen in Figure 1, can be of width enabling them to receive inscriptions  
20 directly while the part is being molded, by etching, by labeling, or by any other means.

Said lid can be made of a transparent plastics material making it possible to see the contents of the container 1 when in the closed position, or making it possible for said  
25 inscriptions to be read.

The device of the invention is made of a plastics material whose characteristics enable it to undergo sterilization methods that are well known in the medical and dental field, such as hot sterilization at 180°C or autoclave  
30 sterilization, or some other sterilization means.



At least one orifice provided in at least one of the faces of the container 1, and preferably in the bottom, serves, in particular, to make it possible to perform autoclave sterilization.

5 The box receiving the device of the invention is also made of a plastics material whose characteristics enable it to undergo sterilization methods that are well known in the medical and dental field, such as hot sterilization at 180°C or autoclave sterilization, or some other sterilization  
10 means.

At least one orifice 9 provided in at least one of the faces of said box 10, and preferably in the bottom, serves, in particular, to make it possible to perform autoclave sterilization.

15 The invention is described above by way of example. Naturally, the person skilled in the art can implement different variants of the invention without going beyond the ambit of the patent.